INFORMATION PAPER

CEMP-ED
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SUBJECT: Military Programs Metrication

1. Purpose. To provide information on Military Programs Metrication.

2. Facts.

a. The federal construction agencies are following: (i) the Public Law 100-418 (the 1988 amendments to the 1975 Metric Conversion Act, PL 94-168), which requires the metric system to be used in federal procurement, grants and business-related activities to the extent feasible by September 30, 1992, and (ii) the Executive Order 12770 of July 25, 1991, which required agencies to develop specific timetables and milestones for the transition by September 30, 1992. Federal construction agencies have worked diligently and successfully for the past five years to convert their construction programs to the metric system because they understand the intent of the law is to increase the nation's global competitiveness. Beside the United States, Liberia and Myanmar, formerly Burma, are the only non-metric countries in the world. We coordinate and share our metrication policy with other Federal agencies through the Construction Metrication Council.

b. Our Technical Instruction (TI) 800-01, Design Criteria, former Architectural and Engineering Instructions (AEI), *Design Criteria,* has included metric measurements since 13 March 1987. As of 1 January 1992, all Corps of Engineers new and revised publications or other design and construction criteria have been, or are being, developed using the metric system. All Corps of Engineers Guide Specifications (CEGS) for military projects have already been converted, and all active standard design packages have been, or are being, converted to the metric system. Our conversion is coordinated with construction industry. If industry sets hard metric standard, we specify. Hard metric products are those that are required to be manufactured in a different size than their inch-pound counterpart.

c. Based on the success of our metric pilot projects in FY 93 through 96, and the successes of other Federal agencies, all military projects, starting with the FY97 MILCON projects, are being and are to be designed using metric system of measurements. Projects that were passed 35 percent concept design stage including the designs that were shelved past 35 percent completion as of 21 November 1994, or completed designs for projects deferred to FY 97 or beyond, were exempted from this metric policy. While recommended, this policy is not mandatory for family housing and small O&MA projects where use of the metric system is may not be economically feasible. In addition, we use discretion for projects involving renovations of existing facilities or site adaptation of previous designs.

d. Our metric conversion guidance has been closely coordinated with the construction industry. Where the industry has committed to a "hard" metric product (i.e., a product that needs to be manufactured in a different physical dimension than its inch-pound counterpart in order to fit into a metric project) and the product is manufactured, the hard metric product dimensions are specified. Where the industry is yet undecided, inch-pound products are specified with both inch-pound and the mathematically converted "soft metric" value. The extent of using hard and soft metric materials are to be further evaluated during the design process based on project size, location, total installed costs, and the availability of the materials.
Only 5-10% of all building materials have to change to hard metric size to allow for efficient design and construction by reducing labor costs. Rest of them will stay the same, but will just be relabeled in metric units, referred to as soft metrication. The initial controversy from three industries --rebar, recessed lighting fixtures, and concrete block - was eliminated, inch-pound substitutes are now allowed for all three products in our metric projects.

e. Increase in construction cost due to metrication is unsubstantiated by recent studies. In an intensively competitive construction industry, where low bidder gets the job, less than 10% of the building materials do not have the clout to affect overall costs significantly. Prevailing bidding climate affects project costs. As with any new way of doing things, learning to think and use metric may take more effort and time on the first metric job, resulting in temporary reduction in productivity (learning curve) until everyone is up to speed. It is hard to put numbers on learning curve, but this is where the perception that the metric projects must cost more comes from.

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